Patent claims:

1. (Cancelled) A device for preventing the creeping of an optical element, in particular a lens or a mirror, the optical element being connected to a mount via connecting members arranged on the circumference of the optical element, and the position of the optical element in an objective deviating from the vertical axial position, characterized in that in order to compensate the dead weight at least of the optical element (2) at least one holding element (7, 11) via which the optical element (2) is held on a housing part of the objective (PL) is provided in addition to the connecting members (4).

2. (Cancelled) The device as claimed in claim 1, characterized in that the optical element (2) is held on the housing part of the objective (PL) by the at least one holding element (7, 11) on the side averted from the direction of the weight force.

3. (Cancelled) The device as claimed in claim 1, characterized in that in addition to being provided for compensating the dead weight, the at least one holding element (7) is also provided for compensating a tilting error.

4. (Cancelled) The device as claimed in claim 1, characterized in that the at least one holding element is designed as a spring element (7), its spring force essentially producing no change in position of the optical element (2) during creeping of the optical element (2).

5. (Cancelled) The device as claimed in claim 4, characterized in that the spring element (7) is biased, the bias corresponding at least approximately to the dead weight of the optical element (2).

6. (Cancelled) The device as claimed in claim 4, characterized in that two spring elements (7) are provided that are respectively connected tangentially at their end points to the optical element (2).

7. (Cancelled) The device as claimed in claim 6, characterized in that the end points of the spring elements (7) are connected to the optical element (2) by gluing.

8. (Cancelled) The device as claimed in claim 4, characterized in that a central spring element (7) is provided that is connected to a connecting element (9) on which fastening elements (10) that act tangentially on the optical element (2) are arranged.

9. (Cancelled) The device as claimed in claim 4, characterized in that the at least one holding element (7) is designed as a pneumatic spring element (11) that is connected to the optical element (2).

10. (Cancelled) The device as claimed in one of claims 1 to 9, characterized in that the at least one holding element (7, 11) is arranged on the optical element (2) in a fashion perpendicular to an optical axis (6) of the optical element (2).

11. (Cancelled) The device as claimed in claim 1, characterized in that the at least one holding element (7) can be adjusted via at least one control element (8).

12. (Cancelled) The device as claimed in claim 3, characterized in that the spring elements (7) are arranged such that an action line of the resulting force runs through a centroid (13) of the optical element (2).

13. (Cancelled) The device as claimed in claim 12, characterized in that an adjusting mechanism (14) is provided by means of which the action line of the resulting force of the spring elements (7) can be displaced to the centroid (13) of the optical element (2).

14. (Cancelled) The device as claimed in claim 13, characterized in that the adjusting mechanism (14) has two pairs of spring elements (7), each spring element (7) acting on the optical element (2) at a distance from the centroid (13) of the optical element (2), and it being possible to adjust the spring elements (7) individually by the adjusting mechanism (14).

15. (Cancelled) A projection objective for semiconductor lithography having at least one optical element, the optical element being connected to a mount via connecting members arranged on the circumference of the optical element, and the position of the optical element deviating from the vertical axial position, characterized in that in order to compensate the dead weight at least of the optical element (2) at least one holding element (7, 11) via which the optical element (2) is held on a housing part is provided in addition to the connecting members (4).

16. (Cancelled) The projection objective as claimed in claim 15, characterized in that the optical element (2) is held on the housing part by the at least one holding element (7, 11) on the side averted from the direction of the weight force.

17. (Cancelled) The projection objective as claimed in claim 15, characterized in that in addition to being provided for compensating the dead weight, the at least one holding element (7) is also provided for compensating a tilting error.

18. (Cancelled) The projection objective as claimed in claim 15, characterized in that the at least one holding element is designed as a spring element (7), its spring force essentially producing no change in position of the optical element (2) during creeping of the optical element (2).

19. (Cancelled) The projection objective as claimed in claim 17, characterized in that two spring elements (7) are provided that are respectively connected tangentially at their end points to the optical element (2).

20. (Cancelled) The projection objective as claimed in claim 15, characterized in that the at least one holding element (7) is designed as a pneumatic spring element (11) that is connected to the optical element (2).

21. (Cancelled) The projection objective as claimed in claim 15, characterized in that the at least one holding element (7, 11) is arranged on the optical element (2) in a fashion perpendicular to an optical axis (6) of the optical element (2).

22. (New) A device for connecting an optical element to a mount of an objective, the optical element being connected to the mount via connecting members arranged on the circumference of the optical element, and the mount axis of the optical element being inclined at an angle to the direction of the weight force, characterized in that in order to compensate the weight force of the optical element at least one spring element via which the optical element is held on a housing part of the objective is provided in addition to the connecting members.

23. (New) The device as claimed in claim 22, characterized in that the optical element is held on the housing part of the objective by the at least one spring element on the side averted from the direction of the weight force.

24. (New) The device as claimed in claim 22, characterized in that in addition to being provided for compensating the dead weight, the at least one spring element is also provided for compensating a tilting error.

25. (New) The device as claimed in claim 22, characterized in that the spring element is biased, the bias corresponding at least approximately to the dead weight of the optical element.

26. (New) The device as claimed in claim 22, characterized in that two spring elements are provided that are respectively connected tangentially at their end points to the optical element.

27. (New) The device as claimed in claim 26, characterized in that the end points of the spring elements are connected to the optical element by gluing.

28. (New) The device as claimed in claim 22, characterized in that a central spring element is provided that is connected to a connecting element on which fastening elements that act tangentially on the optical element are arranged.

29. (New) The device as claimed in claim 22, characterized in that the at least one spring element is designed as a pneumatic spring element that is connected to the optical element.

30. (New) The device as claimed in claim 22, characterized in that the at least one spring element is arranged on the optical element in a fashion perpendicular to an optical axis of the optical element.

31. (New) The device as claimed in claim 22, characterized in that the at least one spring element can be adjusted via at least one control element.

32. (New) The device as claimed in claim 22, characterized in that a number of spring elements are arranged such that an action line of the resulting force runs through a centroid of the optical element.

33. (New) The device as claimed in claim 32, characterized in that an adjusting mechanism is provided by means of which the action line of the resulting force of the spring elements can be displaced to the centroid of the optical element.

34. (New) The device as claimed in claim 33, characterized in that the adjusting mechanism has two pairs of spring elements, each spring element acting on the optical element at a distance from the centroid of the optical element, and it being possible to adjust the spring elements individually by the adjusting mechanism.

35. (New) A projection objective for semiconductor lithography having at least one optical element, the optical element being connected to a mount via connecting members arranged on the circumference of the optical element, and the position of the optical element deviating from the vertical axial position, characterized in that in order to compensate the dead weight at least of the optical element at least one holding element via which the optical element is held on a housing part is provided in addition to the connecting members.

36. (New) The projection objective as claimed in claim 35, characterized in that the optical element is held on the housing part by the at least one holding element on the side averted from the direction of the weight force.

37. (New) The projection objective as claimed in claim 35, characterized in that in addition to being provided for compensating the dead weight, the at least one holding element is also provided for compensating a tilting error.

38. (New) The projection objective as claimed in claim 35, characterized in that the at least one holding element is designed as a spring element, its spring force

essentially producing no change in position of the optical element during creeping of the optical element.

39. (New) The projection objective as claimed in claim 37, characterized in that two spring elements are provided that are respectively connected tangentially at their end points to the optical element.

40. (New) The projection objective as claimed in claim 35, characterized in that the at least one holding element is designed as a pneumatic spring element that is connected to the optical element.

41. (New) The projection objective as claimed in claim 35, characterized in that the at least one holding element is arranged on the optical element in a fashion perpendicular to an optical axis of the optical element.

42. (New) A device for connecting an optical element to a mount of an objective, the optical element being connected to the mount via connecting members arranged on the circumference of the optical element, and the mount axis of the optical element being inclined at an angle to the direction of the weight force, in order to compensate the weight force of the optical element at least one holding element via which the optical element is held on a housing part of the objective being provided in addition to the connecting members, characterized in that the force exerted on the optical element by the holding element remains approximately constant in the event of small deflections of the optical element.

43. (New) The device as claimed in claim 42, characterized in that the optical element is held on the housing part of the objective by the at least one holding element on the side averted from the direction of the weight force.

44. (New) The device as claimed in claim 42, characterized in that in addition to being provided for compensating the dead weight, the at least one holding element is also provided for compensating a tilting error.

45. (New) The device as claimed in claim 42, characterized in that the at least one holding element is designed as a spring element, its spring force essentially producing no change in position of the optical element during creeping of the optical element.

46. (New) The device as claimed in claim 45, characterized in that the spring element is biased, the bias corresponding at least approximately to the dead weight of the optical element.

47. (New) The device as claimed in claim 45, characterized in that two spring elements are provided that are respectively connected tangentially at their end points to the optical element.

48. (New) The device as claimed in claim 47, characterized in that the end points of the spring elements are connected to the optical element by gluing.

49. (New) The device as claimed in claim 45, characterized in that a central spring element is provided that is connected to a connecting element on which fastening elements that act tangentially on the optical element are arranged.

50. (New) The device as claimed in claim 45, characterized in that the at least one spring element is designed as a pneumatic spring element that is connected to the optical element.

51. (New) The device as claimed in claim 42, characterized in that the at least one holding element is arranged on the optical element in a fashion perpendicular to an optical axis of the optical element.

52. (New) The device as claimed in claim 42, characterized in that the at least one holding element can be adjusted via at least one control element.

53. (New) The device as claimed in claim 44, characterized in that a number of holding elements are arranged such that an action line of the resulting force runs through a centroid of the optical element.

54. (New) The device as claimed in claim 53, characterized in that an adjusting mechanism is provided by means of which the action line of the resulting force of the holding elements can be displaced to the centroid of the optical element.

55. (New) The device as claimed in claim 54, characterized in that the adjusting mechanism has two pairs of holding elements, each holding element acting on the

optical element at a distance from the centroid of the optical element, and it being possible to adjust the holding elements individually by the adjusting mechanism.